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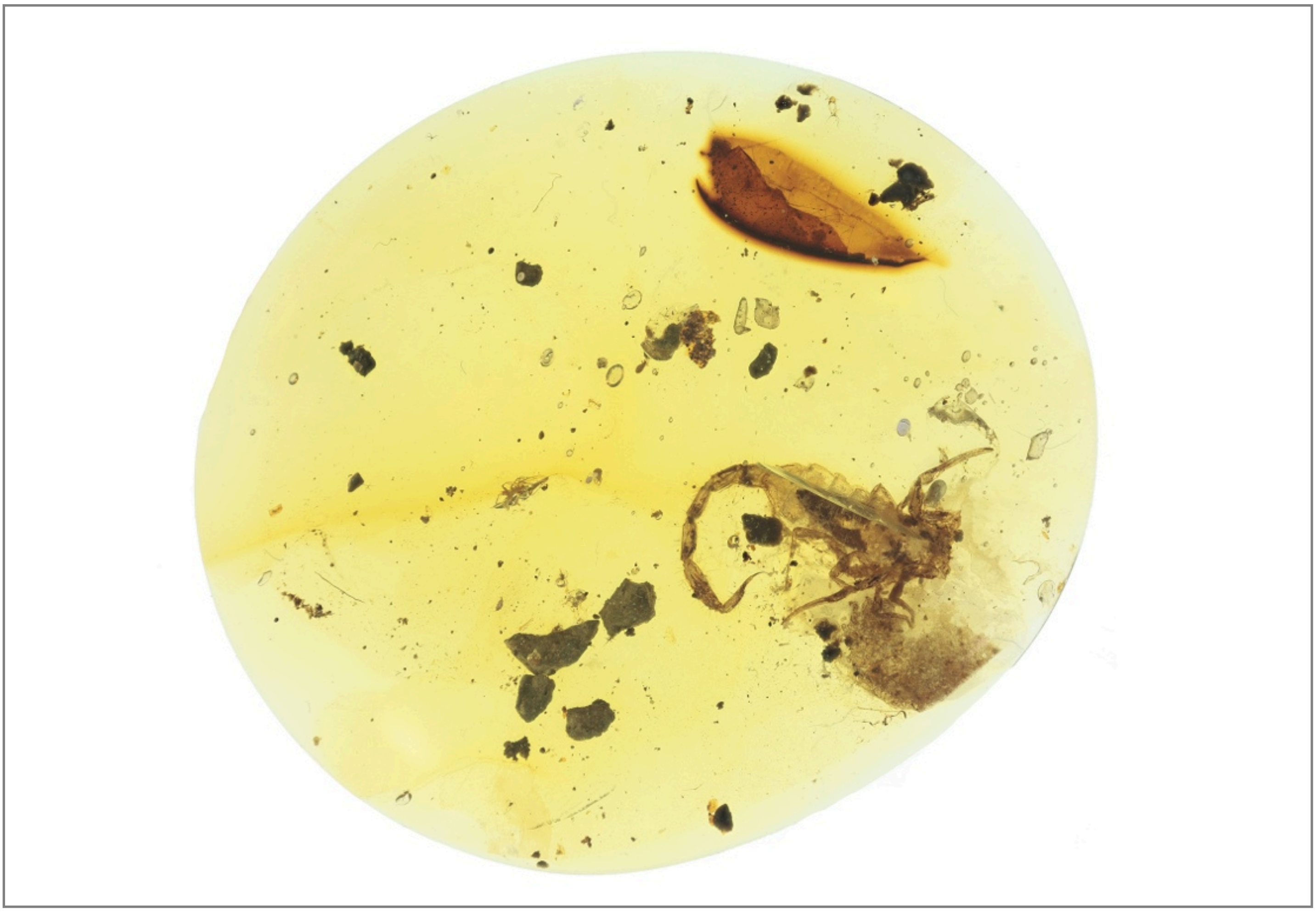

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An unusual new species of *Betaburmesebuthus* Lourenço, 2015 trapped in Burmite (Scorpiones: Palaeoburmesebuthidae)

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taxonomy;
new species;
description;
fossil;
Cretaceous;
Burmite;
Myanmar.

Abstract. – A particular new species of fossil scorpion belonging to the genus *Betaburmesebuthus* Lourenço, 2015, is described from the Cretaceous amber of Myanmar (Burma). The new species is characterized by a combination of several morphological features and in particular by the presence of two lateral eyes. The description of the new species confirms, once again, the considerable degree of diversity in the Burmese amber-producing forests.

Lourenço W. R. & Velten J., 2024. – An unusual new species of *Betaburmesebuthus* Lourenço, 2015 trapped in Burmite (Scorpiones: Palaeoburmesebuthidae). *Faunitaxys*, 12(26): 1 – 5.

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Introduction

As already stated in recent publications (Lourenço, 2023; Lourenço & Velten, 2023), scorpions can yet be considered rare among the fossil arthropods found trapped in amber. However, during the last 30 years a continuous number of pieces containing scorpions were found and this is particularly true for those from Myanmar Cretaceous amber (Burmite). Nevertheless, if some taxonomic groups remain extremely discrete, others proved to be particularly speciose such as the members of the families Palaeoburmesebuthidae Lourenço, 2015 and Chaerilobuthidae Lourenço & Beigel, 2011. It is also important to recall that the multiplication of new descriptions, particularly when produced by weakly-qualified scorpion taxonomists, can represent a source of problems for future identifications. Many species, and in particular those belonging to the family Palaeoburmesebuthidae, show very close morphologies. Consequently, the elements of this family represent on themselves a major challenge for precise identifications.
In the present contribution one almost complete specimen, presenting some quite unique characters is studied, authorising therefore the description of a new species for the genus *Betaburmesebuthus* Lourenço. Once again, the considerable degree of scorpion diversity in the Burmese amber-producing forests is confirmed. For a global view on the knowledge of scorpions found in amber a recent synopsis of all taxa was recently provided (Lourenço, 2023); consequently, it will not be further discussed here.

Material and methods

The specimen investigated is preserved in a relative clear oval to round piece of yellow amber that measures 23x22x3 mm. The scorpion is complete; however, some characters are not clearly visible since the specimen suffered a certain degree of dissection (mummification) process within the resin, as for many specimens found in Burmite. The presence of inclusions such as vegetal debris, small rocks and in particular a type of white substance covering most of the ventral surface prevents a good observation. A reasonable number of characters are however visible and allow some detailed investigation. The schematic drawings provided are an interpretation of what was observable. Illustrations and measurements were produced with the aid of a Wild M5 stereomicroscope equipped with a drawing tube (camera lucida) and an ocular micrometre. Measurements follow Stahnke (1970) and are given in mm. Trichobothrial notations follow Vachon (1974) and morphological terminology mostly follows Hjelle (1990). Trichobothria were definitely recorded only when their bothria (areoles) could be observed.

Taxonomic treatment

Buthoidea C. L. Koch, 1837

Palaeoburmesebuthidae Lourenço, 2015

Betaburmesebuthus Lourenço, 2015

Betaburmesebuthus thomasvelteni Lourenço **sp**. **n**.

(Fig. 1-9)

ZooBank: https://zoobank.org/244B0283-A7BB-477E-BF28-5DD4678B5CBA

Holotype. A juvenile, or possible pre-adult; sex uncertain, most certainly a female.

Type locality and horizon. – Myanmar (Burma), Kachin; precise locality unknown; Lower Cretaceous.

Reviewer: Eric Ythier (*BYG Taxa, France*) - ZooBank: http://zoobank.org/06FD0852-A88E-49E5-B8E6-E1494B86C4E1

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Diagnosis. – General morphology is globally similar to that of other species of the genus *Betaburmesebuthus* Lourenço, 2015. The following combination of characters can, however be used to diagnose the new species: carapace weakly granulated, almost smooth; almost as long as wide; anterior margin with a weakly to moderately marked median concavity; median eyes small and widely separated and only two lateral eyes. Tergites with one weak median carina, the lateral carinae are totally inconspicuous. Sternites weakly observed but with small semi-oval spiracles. Metasomal segments I and II with 10 carinae; III and IV with 8 carinae; dorsal carinae on segments III and IV without spinoid granules; setation on all metasomal segments weakly marked; telson elongated with a few inconspicuous ventral granules; base of aculeus slightly enlarged. Internal faces of femur and patella with a few weak spinoid granules. Fixed and movable fingers of pedipalp chela with a series of small rounded granules and a few conspicuous spinoid accessory granules. Trichobothrial pattern conforming with the extant buthid type A (Vachon, 1974): at least 4 internal, 5 dorsal and 2 external trichobothria on the femur; trichobothria $\mathbf{d}_1$, $\mathbf{d}_3$ and $\mathbf{d}_5$ displaced in the same line; dorsal trichobothria disposed in beta (β) configuration (Vachon, 1975); 1 internal and 5 dorsal trichobothria on patella; several external trichobothria can be suggested on patella by the presence of fine setae; 4-5 dorso-external and 2 ventral on chelal hand; 6 on fixed finger. Legs and spurs not well observable.

Patronym. – The specific name honors Thomas Velten (Hofheim/TS., Germany), the son of Jürgen Velten, in recognition to the global support of this family to the study of amber trapped scorpions.

Depository. – The type specimen is deposited in the Collection of Thomas Velten (Hofheim/TS., Germany).

Description

Coloration. – The scorpion is yellow; carapace and tergites yellow; metasomal segments slightly reddish-yellow; telson reddish-yellow; pedipalps reddish-yellow; legs yellow. Ventral aspect yellow.

Morphology. – Carapace as long as wide; weakly granular, almost smooth; anterior margin with a weakly to moderately marked median concavity. Carinae inconspicuous; furrows weak. Median ocular tubercle clearly anterior to the centre of carapace; median eyes small in size and largely separated by 2.5 ocular diameters. Two pairs of lateral eyes of small size. Sternum not observable. Mesosomal tergites weakly granular, with one weak median carina; lateral carinae totally inconspicuous; VII with five weakly marked carinae. Pectines not observable. Sternites V-VII smooth, with small oval-round spiracles. Metasomal segment I to IV with 10-10-8-8 carinae; dorsal on III and IV with vestigial spinoid granules; segment V slender with five carinae; dorsal aspect of segments I to V weakly depressed; setation on all segments weakly marked. Telson with a long pear-shaped vesicle; aculeus extremely long and strongly curved at the extremity and enlarged at the middle; setation weakly marked. Cheliceral dentition only partially visible; distal teeth moderately long (Vachon, 1963). Pedipalp femur pentacarinate; patella with 6-7 carinae; internal face of femur and patella without any marked spinoid granules. Chela without carinae; all faces not granular. Fixed and movable fingers each with one series of small rounded granules and a few conspicuous spinoid accessory granules; extremity of fingers with stronger spinoid granules; setation of pedipalps almost absent. Trichobothriotaxy type A (Vachon, 1974), as for extant buthids. See diagnosis for details; dorsal trichobothria disposed in beta (β) configuration (Vachon, 1975). Legs and spurs not clearly observable.

Morphometric values (mm), holotype of *Betaburmesebuthus thomasvelteni* Lourenço **sp**. **n**.

– ***Total length*** (including telson) 13.08.

– ***Carapace***
length 1.47,
anterior width 1.10,
posterior width 1.47.

– ***Mesosoma***: length 3.87.

– ***Metasomal segments***
I: length 0.94, width 0.81;
II: length 1.10, depth 0.47;
III: length 1.14, depth 0.41;
IV: length 1.21, depth 0.41;
V: length 1.61, depth 0.47.

– ***Telson***: length 1.74.

– ***Vesicle***: depth 0.27.

– ***Pedipalp***
femur length 1.14, width 0.47;
patella length 1.34, width 0.41;
chela length 2.27, width 0.27;
movable finger length 1.74.

Relationships. – The almost square shape of the carapace seems to associate the new species with *Betaburmesebuthus joergi* Lourenço & Rossi, 2017. However, the presence of only two pairs of lateral eyes in the new species, places it in a rather isolated position within the genus *Betaburmesebuthus*.

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References

Hjelle J. T., 1990. – Anatomy and morphology. Pp. 9-63. In: G. A. Polis (ed.), *The Biology of Scorpions*. Stanford University Press, 587 p.

Lourenço W. R., 2023. – Scorpions trapped in amber: a remarkable window on their evolution over time from Mesozoic period to present days. *Journal of Venomous Animals and Toxins including Tropical diseases*: 1-15 +Addendum: Commented checklist of the known amber scorpion species: 1-9. https://doi.org/10.1590/1678-9199-JVATITD-2023-0040

Lourenço W. R. & Velten J., 2023. – A remarkable new species of *Betaburmesebuthus* Lourenço, 2015 from Burmite (Scorpiones: Palaeoburmesebuthidae). *Faunitaxys*, 11 (78): 1- 5.

Stahnke H. L., 1970. – Scorpion nomenclature and mensuration. *Entomological News*, 81: 297-316.

Vachon M., 1963. – De l'utilité, en systématique, d'une nomenclature des dents des chélicères chez les Scorpions. *Bulletin du Muséum national d'Histoire naturelle*, Paris 2è sér. 35: 161-166.

Vachon M., 1974. – Etude des caractères utilisés pour classer les familles et les genres de Scorpions (Arachnides). 1. La trichobothriotaxie en arachnologie. Sigles trichobothriaux et types de trichobothriotaxie chez les Scorpions. *Bulletin du Muséum national d'Histoire naturelle*, Paris 3^{e} sér., 140, 857-958.

Vachon M., 1975. – Sur l'utilisation de la trichobothriotaxie du bras des pédipalpes des Scorpions (Arachnides) dans le classement des genres de la famille des Buthidae Simon. *Comptes Rendus des Séances de l'Académie des Sciences*, 281 (D): 1597-1599.

Authors contribution [1]

Publisher Correspondence. – WL
Writing the article. – WL
Description. – WL
Article proofreading. – WL
Bibliographic work. – WL
Material study. – WL & JV
Author of the figures. – WL (Fig. 1-5)

[1] **WL** = Wilson R. Lourenço – **JV** = Jürgen Velten

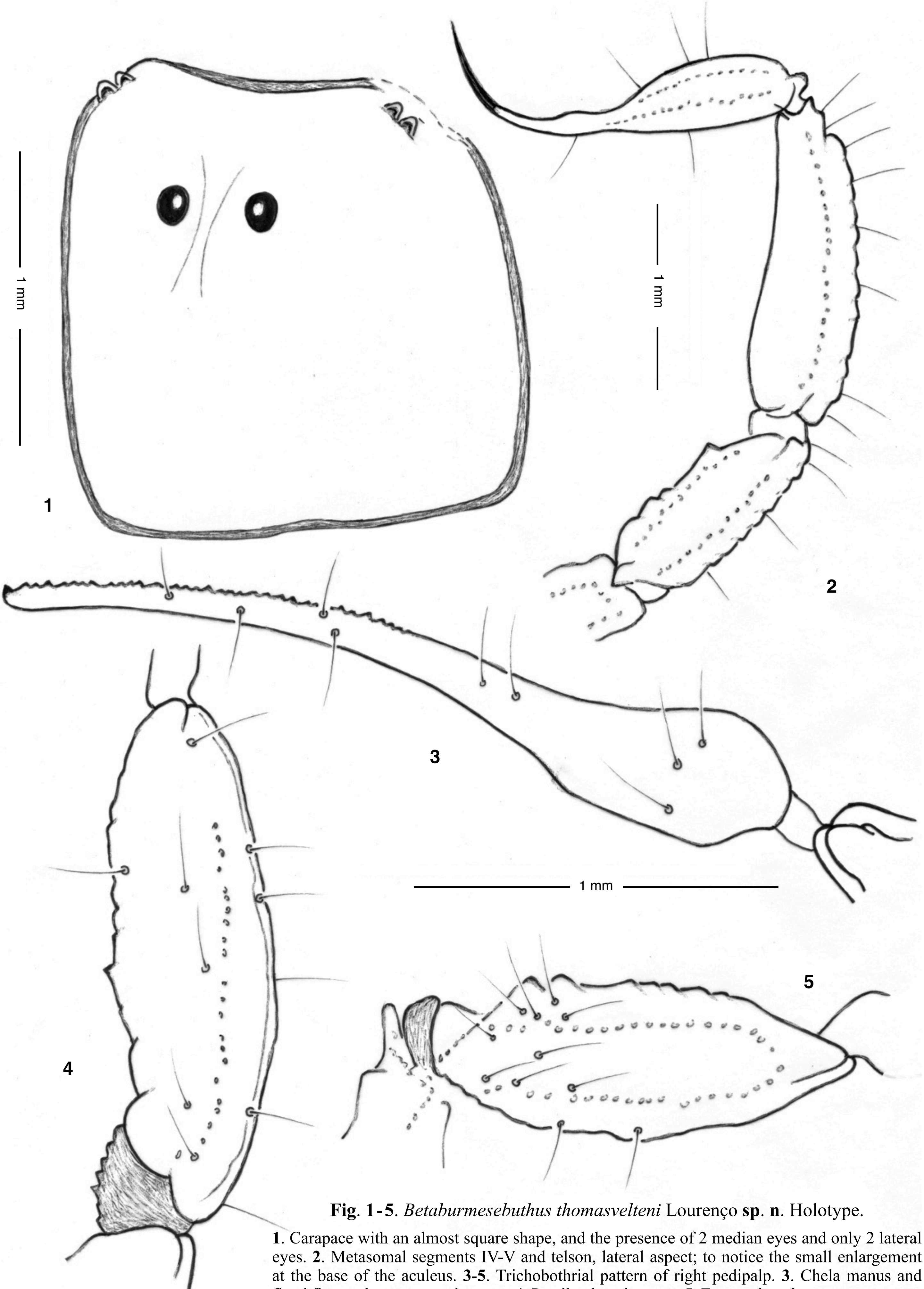

Fig. 1-5. *Betaburmesebuthus thomasvelteni* Lourenço **sp**. **n**. Holotype.

1. Carapace with an almost square shape, and the presence of 2 median eyes and only 2 lateral eyes. **2**. Metasomal segments IV-V and telson, lateral aspect; to notice the small enlargement at the base of the aculeus. **3-5**. Trichobothrial pattern of right pedipalp. **3**. Chela manus and fixed finger, dorso-external aspect. **4**. Patella, dorsal aspect. **5**. Femur, dorsal aspect.

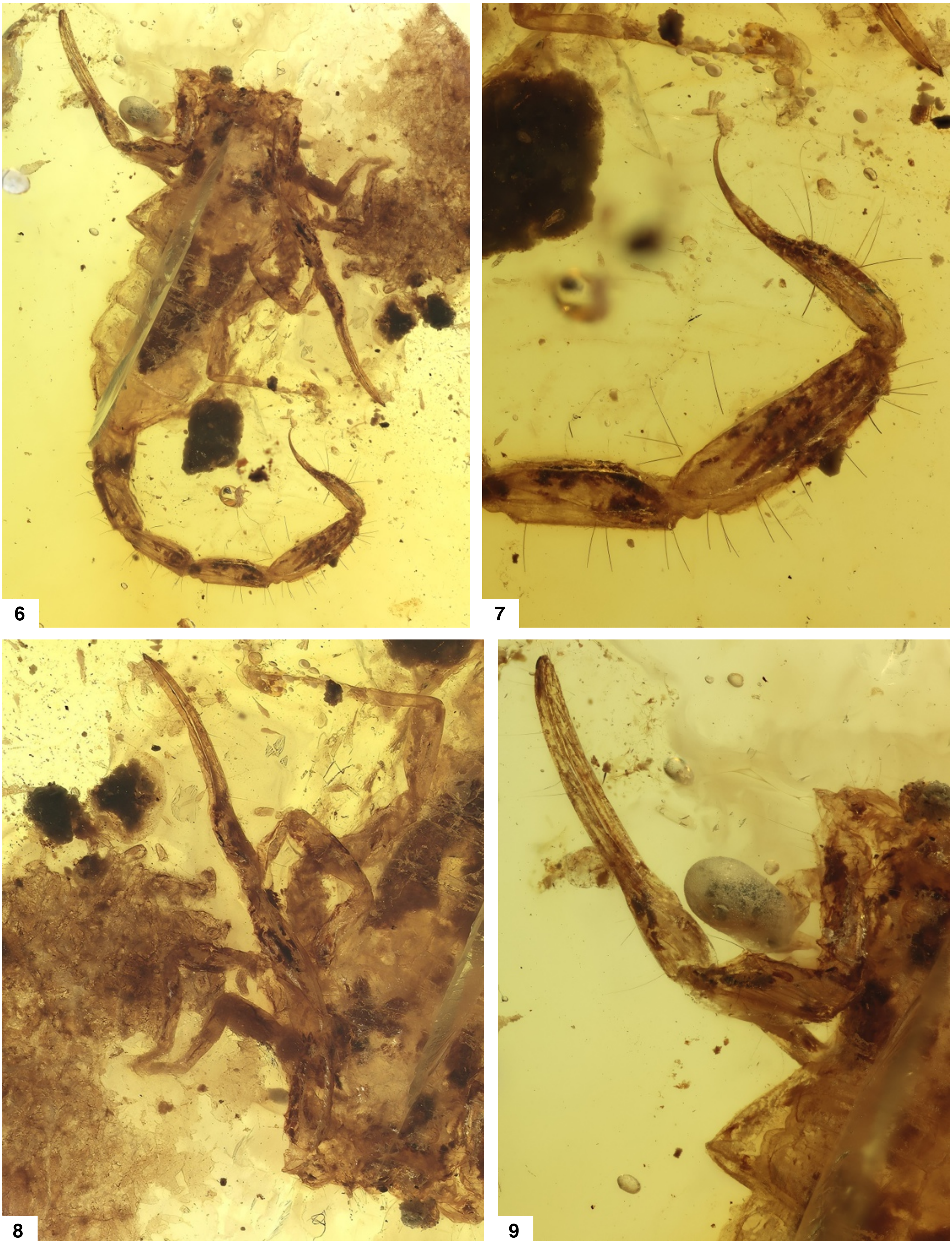

Fig. 6-9. *Betaburmesebuthus thomasvelteni* Lourenço **sp. n.** Holotype.

6. Habitus, dorsal aspect. **7**. Metasomal segments IV and V and telson in detail, lateral aspect. **8**. Right pedipalp in detail, dorso-external aspect. **9**. Left pedipalp in detail, dorso-external aspect. Left side of carapace with 2 lateral eyes can also be observed.

Résumé

Lourenço W. R. & Velten J., 2024. – Une nouvelle espèce particulière appartenant au genre *Betaburmesebuthus* Lourenço, 2015 retrouvée dans l'ambre Crétacé de Myanmar (Scorpiones : Paleoburmesebuthidae). *Faunitaxys*, 12(26): 1 – 5.

Une nouvelle espèce particulière de scorpion fossile appartenant au genre *Betaburmesebuthus* Lourenço, 2015, est décrite de l'ambre Crétacé de Myanmar. La nouvelle espèce est caractérisée par un ensemble de structures morphologiques distinctes et en particulier par la présence de deux yeux latéraux. La description de la nouvelle espèce confirme une fois de plus la très importante diversité retrouvée dans l'ambre Crétacé de Myanmar.

Mots-clés. – Scorpiones, Palaeoburmesebuthidae, *Betaburmesebuthus*, *thomasvelteni*, taxonomie, nouvelle espèce, description, fossile, Crétacé, Myanmar.

Derniers articles publiés

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Gerstmeier R., 2024. – *Phloiocopus bimaculatus* **sp**. **n**., a new apterous species from Somalia (Coleoptera, Cleridae, Clerinae). *Faunitaxys*, 12(17): 1 – 3. https://doi.org/10.57800/faunitaxys-12(17)

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Ythier E., 2024. – A new high-altitude scorpion species of the genus *Ananteris* Thorell, 1891 (Scorpiones: Ananteridae) from the Pico da Neblina, Brazil. *Faunitaxys*, 12(19): 1 – 9. https://doi.org/10.57800/faunitaxys-12(19)

Keith D., 2024. – Description de deux espèces nouvelles du genre *Miridiba* Reitter, 1902 du Vietnam (Coleoptera: Scarabaeidae, Melolonthinae, Rhizotrogini). *Faunitaxys*, 12(20): 1 – 6. https://doi.org/10.57800/faunitaxys-12(20)

Deslisle G. & Plante É., 2024. – Une nouvelle sous-espèce d'*Ornithoptera* (*O.*) *priamus* (Linnaeus, 1758) découverte sur l'île de Gorong, Moluques, Indonésie (Lepidoptera, Papilionidae, Troidini). *Faunitaxys*, 12(21): 1 – 19. https://doi.org/10.57800/faunitaxys-12(21)

Vives E. & Trócoli S., 2024. – Una nueva especie de *Pseudochoeromorpha* Breuning, 1936 de Sulawesi, Indonesia (Coleoptera, Cerambycidae: Lamiinae). *Faunitaxys*, 12(22) : 1 – 3. https://doi.org/10.57800/faunitaxys-12(22)

Huchet J-B., 2024. – *Nothochodaeus lycaon,* a new species from Palawan Island, Philippines (Coleoptera: Scarabaeoidea: Ochodaeidae). *Faunitaxys*, 12(23) : 1 – 4. https://doi.org/10.57800/faunitaxys-12(23)

Lourenço W. R. & Velten J., 2024. – One more particular new species belonging to the genus *Chaerilobuthus* Lourenço & Beigel, 2011 (Scorpiones: Chaerilobuthidae). *Faunitaxys*, 12(24): 1 – 5. https://doi.org/10.57800/faunitaxys-12(24)

Háva J., 2024. – A new *Anthrenus* Geoffroy, 1762 species from Iran (Coleoptera: Dermestidae: Megatominae: Anthrenini). *Faunitaxys*, 12(25) : 1 – 3. https://doi.org/10.57800/faunitaxys-12(25)

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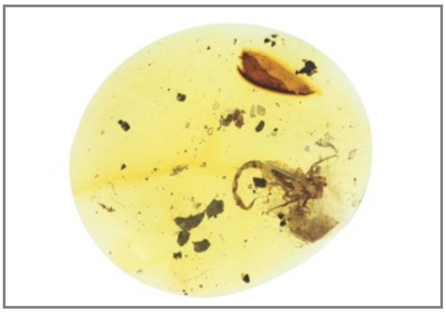

Illustration de la couverture :

Betaburmesebuthus thomasvelteni Lourenço **sp**. **n**. in the stone (piece of amber).

Crédits:

Wilson R. Lourenço : Fig. 1-5.

Alexander Beigel : Fig. 6-9 & couverture.

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